AMENDMENTS

1. (Currently amended) A fuel cell power system comprising:

a fuel cell stack having a nonreactive manifold wherein heat is exchanged
between a fuel fluid and an oxidant fluid;

a recuperator wherein heat is exchanged between an exhaust gas from said fuel cell stack and said oxidant fluid;

a thermal enclosure surrounding said fuel cell stack, said manifold, and said recuperator.

2. (Original) The fuel cell power system of Claim 1, further comprising a combustion chamber inside said thermal enclosure for oxidizing said exhaust gas.

3. (Original) The fuel cell power system of Claim 1, further comprising a reformer inside said thermal enclosure wherein fuel is pre-heated before delivery to said fuel cell stack.

4. (Original) The fuel cell power system of Claim 3, wherein said reformer uses catalytic partial oxidation to pre-heat said fuel.

5. (Original) The fuel cell power system of Claim 1, further comprising a fuel vaporizer inside said thermal enclosure, said fuel vaporizer in fluid communication with said manifold.

6. (Original) The fuel cell power system of Claim 5, further comprising:

a fuel storage tank in fluid communication with said fuel vaporizer; a pressure relief valve; and

an air flow delivery device wherein said air flow delivery device pressurizes said oxidant fluid and delivers said oxidant fluid to said manifold and wherein said air flow delivery device provides pressurization for said fuel storage tank, and said pressure relief valve regulates said pressurization.

7. (Original) The fuel cell power system of Claim 1, wherein said thermal enclosure includes a vacuum vessel.

8. (Original) The fuel cell power system of Claim 1, wherein said thermal enclosure includes multi-layer insulation comprising alternating layers of metal foil and porous ceramic.

9. (Original) The fuel cell power system of Claim 1, wherein said manifold is an internal manifold.

10. (Previously presented) The fuel cell power system of Claim 6, wherein said air flow delivery device is an air compressor.

11. (Previously presented) A fuel cell stack, comprising:

an internal manifold having a first interior cavity, a second interior cavity, a first flow orifice and a second flow orifice wherein a first fluid is delivered through said first flow orifice from said first interior cavity, a second fluid is delivered through said second flow orifice from said second interior cavity, heat is exchanged between said first and second fluids, and said first and second fluids are kept separate;

a fuel cell having an anode layer, a cathode layer, and an electrolyte layer between said anode layer and said cathode layer, said fuel cell being disposed about said internal manifold; and

at least one separator plate disposed about said internal manifold and defining a first channel and second channel, said first channel providing fluid communication between said first flow orifice and said anode layer, said second channel providing fluid communication between said second flow orifice and said cathode layer.

12. (Original) The fuel cell stack of Claim 11, wherein said second interior cavity is annularly disposed about said first interior cavity and a feed tube disposed within said second interior cavity provides fluid communication between said first interior cavity and said first flow orifice.

13. (Original) The fuel cell stack of Claim 11, further comprising a porous flow distributor disposed in said first channel.

14. (Original) The fuel cell stack of Claim 11, further comprising a porous flow distributor disposed in said second channel.

15. (Original) The fuel cell stack of Claim 11, further comprising an interconnect disposed between said separator plate and said anode layer.

16. (Original) The fuel cell stack of Claim 11, further comprising an interconnect disposed between said separator plate and said cathode layer.

17. (Original) The fuel cell stack of Claim 11, further comprising a pair of end plates disposed on opposite sides of said cell.

18. (Original) The fuel cell stack of Claim 11, wherein said single cells comprise solid oxide fuel cells.

19. (Original) The fuel cell stack of Claim 11, wherein said single cells comprise proton exchange membrane fuel cells.

20. (Original) The fuel cell stack of Claim 11, wherein said single cells have a substantially planar and annular configuration.

21. (Original) The fuel cell stack of Claim 11, wherein said first interior cavity receives a fuel and said second interior cavity receives an oxidant.

22. (Original) The fuel cell stack of Claim 15, wherein said interconnect is made of metal foil in an off-set fin structure.

23. (Original) The fuel cell stack of Claim 16, wherein said interconnect is made of metal foil in an off-set fin structure.

24. (Original) The fuel cell stack of Claim 15, wherein said interconnect is made of a porous metal.

25. (Original) The fuel cell stack of Claim 16, wherein said interconnect is made of a porous metal.

26. (Original) The fuel cell stack of Claim 15, wherein said interconnect for an anode side of said cells is made of nickel foam.

27. (Original) A fuel cell power system comprising:

a fuel cell stack having a manifold wherein heat is exchanged between a fuel fluid and an oxidant fluid;

said manifold including a catalytic partial oxidation fuel reformer;

a fuel vaporizer in fluid communication with said manifold;

a combustion chamber wherein an exhaust gas from said fuel cell stack is oxidized;

a recuperator wherein heat is exchanged between said exhaust gas and said oxidant fluid;

a thermal enclosure enclosing said fuel vaporizer, said fuel cell stack, said manifold, said catalytic partial oxidation fuel reformer, said combustion chamber, and said recuperator;

a fuel storage tank in fluid communication with said fuel vaporizer;

a pressure relief valve;

an air flow delivery device wherein said air flow delivery device pressurizes said oxidant fluid and delivers said oxidant fluid to said manifold and delivers said oxidant fluid to said manifold and wherein said air flow delivery device provides pressurization for said fuel storage tank, and said pressure relief valve regulates said pressurization.

28. (Currently amended) A method of power generation comprising steps of:

using a fuel cell stack to generate power;

combusting an exhaust gas from said fuel cell stack;

exchanging a first heat between said exhaust gas and an oxidant fluid without reacting said exhaust gas and said oxidant;

exchanging a second heat between a fuel fluid and said oxidant fluid;

enclosing said fuel cell stack, said first heat, and said second heat within a thermal enclosure.

29. (Original) The method of Claim 28, further comprising a step of vaporizing said fuel fluid.

30. (Original) The method of Claim 28, further comprising a step of reforming said fuel fluid.

31. (Original) The method of Claim 30, wherein said reforming step includes a catalytic partial oxidation process.

32. (Original) The method of Claim 28, further comprising a step of providing said fuel fluid from a fuel storage tank to said fuel cell stack.

33. (Original) The method of Claim 28, further comprising a step of pressurizing said oxidant fluid.

34. (Original) The method of Claim 32, further comprising a step of pressurizing said fuel storage tank.

35. (Original) The method of Claim 33, wherein said step of pressurizing said fuel storage tank is regulated using a pressure relief valve.

36. (Original) The method of Claim 28 wherein said enclosing step uses a vacuum vessel.

37. (Original) The method of Claim 28 wherein said enclosing step uses multi-layer insulation comprising alternating layers of metal foil and porous ceramic.